

Block

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APPRAISAL MONITORING AND EVALUATION

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BLOCK APPRASAL MONITORING AND EVALUATION

Development projects or programmes involve decision making on a number of interrelated time bound activities. Therefore, we often depend on appraisal, monitoring and evaluation that are effective enough not only for drawing-up the best possible initial plan but also capable of projecting instantaneously the impact of deviations so as to initiate necessary corrective measures. Therefore, Block- 2 of Course 'MDV-105: Development Planning and Management' appraises you about the concepts of appraisal, monitoring and evaluation.

Unit 1, **Project Appraisal**, distinguishes between projects and programmes, describes the project cycle management and project appraisal techniques.

Unit 2 on '**Monitoring**' introduces the concept and scope of monitoring in development programmes. The various elements, types, techniques, approaches and indicators of monitoring are also covered in this unit.

Unit 3 on '**Evaluation**' discusses the meaning, features, types, designs, methods and approaches of evaluation of development programmes.



UNIT 1 PROJECT APPRAISAL

Structure

- 1.1 Introduction
- 1.2 Projects: Meaning and Concept
- 1.3 Difference between a Project and a Programme
- 1.4 Project Preparation
- 1.5 Project Cycle Management
- 1.6 Project Appraisal Techniques
 - 1.6.1 Non-Discounting Techniques
 - 1.6.2 Discounting Techniques
- 1.7 Let Us Sum Up
- 1.8 References and Selected Readings
- 1.9 Check Your Progress – Possible Answers

1.1 INTRODUCTION

In the previous block, you have read about programme planning, needs assessment, participatory programme planning and participatory methods. This unit deals with the project appraisal techniques. Projects often provide the base for sustainable development interventions. Project appraisal is a generic term that refers to the process of assessing, in a structured way, the case for proceeding with a project or proposal. It often involves comparing various options, using economic appraisal or some other decision analysis technique. A good appraisal justifies spending money on a project. It is an important tool in decision making and lays the foundation for delivery and evaluation. Appraisal asks fundamental questions about whether funding is required and whether a project offers good value for money. It can give confidence that public money is being put to good use, and help identify other funding to support a project.

After studying this unit you should be able to:

- explain the meaning, concept and differences between project and programme;
- discuss major aspects to be considered in preparation of a project; and
- describe project cycle management and project appraisal techniques.

1.2 PROJECTS: MEANING AND CONCEPT

What are Projects?

Projects are the cutting edge of development. Projects are an investment activity in which financial resources are expended to create capital assets that produce benefits over an extended period of time.

UNIDO defines a project as a proposal for an investment to create and develop certain facilities in order to increase the production of goods/services in a community during a certain period of time.

The Chartered Management Institute define a project as “an activity that has a beginning and an end which is carried out to achieve a particular purpose to a set quality within given time constraints and cost limits”.

A project may be defined as an activity for which money will be spent in an expectation of returns and which logically seems to lend itself to planning financing and implementation as a unit. It is the smallest operational element prepared and implemented as a separate entity in a national plan of programmes of development.

A project is also defined as a proposal for an investment to create, expand and develop certain facilities in order to increase the production of goods and services in a community during a certain period of time. Furthermore, for evaluation purposes, a project is a unit of investment, which can be distinguished technically, commercially and economically from other investments.

1.3 DIFFERENCE BETWEEN A PROJECT AND A PROGRAMME

Many people are uncertain about the difference between a project and a programme. A project is a temporary entity established to deliver specific (often tangible) outputs in line with predefined time, cost and quality constraints. Whereas, a program is a portfolio comprising of multiple projects that are managed and coordinated as one unit with the objective of achieving (often intangible) outcomes and benefits for the organization.

Table 1.1 summarizes the main areas of differences between a project and a programme.

Table 1.1: Difference between Project and a Programme

Parameter	Project	Programme
Objectives	Outputs are tangible; relatively easy to describe, define and measure; tending towards objective.	Outcomes are often intangible; difficult to quantify; benefits often based on changes to organizational culture and behaviours; introducing new capabilities into the organization; tending towards subjective.
Scope	Strictly limited; tightly defined; not subject to change during the life of the project.	Not tightly defined or bounded; likely to change during the life cycle of the program.
Duration	Relatively short term; typically three to six months.	Relatively long term typically eighteen months to three years.
Risk profile	Project risk is relatively easy to identify and manage. The project failure would result in relatively limited impact on the organization relative to program risk.	Program risk is more complex and potentially the impact on the organization if a risk materializes will be greater relative to project risk. Programme failure could result in material financial, reputational or operational loss.

Nature of the problem	Clearly defined.	Ill-defined; often disagreement between key stakeholders on the nature and definition of the problem.
Nature of the solution	A relatively limited number of potential solutions.	A significant number of potential solutions with disagreement between stakeholders as to the preferred solution.
Stakeholders	A relatively limited number of potential solutions.	A significant number of potential solutions with disagreement between stakeholders as to the preferred solution.
Relationship to environment	Environment within which the project takes place is understood and relatively stable.	Environment is dynamic; and programme objectives need to be managed in the context of the changing environment within which the organization operates.
Resources	Resources to deliver the project can be reasonably estimated in advance.	Resources are constrained and limited; there is competition for resources between projects.

1.4 PROJECT PREPARATION

The preparation of a project entails consideration of many aspects. The major aspects to be considered in preparation of a project are:

1. Technical
2. Institutional
3. Organizational
4. Managerial
5. Social
6. Commercial
7. Financial
8. Economic

Let us now discuss each of these aspects of project preparation.

1. Technical Aspects

The technical aspect of any project considers the technical feasibility of any project. It concerns with the technical aspect of a project from both input supply side and output delivery side. For example if you want to take up an agricultural project in a region, you may have to examine the soil type of the region, water availability, crops grown, livestock breed suitable for the area, pests prevalent in the area etc. This information can be used in estimating the possible

yield and income from agriculture. Such information can be collected through soil surveys, groundwater surveys, collection of hydrological data, primary surveys of farmer households etc. The information regarding marketing and storage facilities responsible are needed to assess the possibility of marketing and processing of the products.

2. Institutional Aspects

The institutional aspect of a project deals with the framework within which the project will have to operate. A complete knowledge of the institutional aspect helps identifying the components of institutional framework that will have a bearing on the project. Some of the elements that constitute the institutional framework include government institutions, project authority, corporate bodies, land tenure systems, banking and credit institutions, religious customs, practices and social mores. There is a need to understand the administrative system of the region where the project has to be undertaken.

3. Organizational Aspects

Here the term organization refers to the structure of the body that would undertake the task of project execution. The proposed organization must have the capacity to carry out the assignments given to it. Some of the basic principles to be followed include:

1. There must be clear lines of authority running from top to bottom of the organization and the chain of command should be clear.
2. The responsibilities of each authority should be clearly defined in writing.
3. The decision making power should be placed as near as possible to the scene of action.
4. The number of levels of authority should be kept at minimum.
5. The organization should be kept as simple as possible and should be flexible to adjust to changing conditions.

4. Management Aspects

The main task of management is to implement the project objectives within the framework of organizational structure. For good management, a clear definition of functions and activities are required. There is also a need for allocating responsibilities to various agencies for various project activities. A suitable mechanism for coordination of the activities of participating agencies should also be developed. Besides, proper staffing also comes under the purview of the management.

5. Social Aspects

It is very important to assess the social patterns, customs, culture, traditions and habits of the clientele. Various aspects like changes in living standards, material welfare, income distribution etc. In selecting some projects, weights are assigned for income distribution so that the projects which benefit the lower income group are benefitted. The adverse effect of the project on particular group is

also examined. Preserving the environment and wildlife habitats is given high priority.

6. Commercial Aspects

The commercial aspects of a project involves the arrangements of marketing the output produced by the project and ensuring supply of inputs needed for the project to operate. There is a need to assess the effective demand of the project output and the prices that may prevail under the demand and supply situations. The analyst also needs to cautiously evaluate the impact of product supply on the price of the product and the viability of the project under such changed price situation.

7. Financial Aspects

Decisions about undertaking any project depend a lot on financial analysis of a project. As there could be many beneficiaries/participating agencies of any project, there is a need for separate financial analysis each.

Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. What are projects? How do they help in development?

.....

2. What are the technical aspects to be considered while preparing a project?

.....

1.5 PROJECT CYCLE MANAGEMENT

Project cycle, also called project life cycle is the natural sequence in the way projects are planned and carried out (Fig. 1.1). It is a seven stage process through which practically every major project goes through:

- i. Identification stage:** Here one project-idea out of several alternatives is chosen and defined.
- ii. Preparation and analysis:** Defined idea is carefully developed to the appraisal stage.
- iii. Appraisal:** Every aspect of the project idea is subjected to systematic and comprehensive evaluation, and a project plan is prepared.
- iv. Presentation:** Detailed plan is submitted for approval and financing to the appropriate entities.
- v. Implementation:** With necessary approvals and financing in place, the project plan is implemented.
- vi. Monitoring:** At every stage the progress of the project is assessed against the plan.

vii. Evaluation: Upon completion the project is reassessed in terms of its efficiency and performance.

There tends to be a natural sequence in the way projects are planned and carried out, and this sequence is often called the “project cycle.” As was the case with aspects of project analysis, there are many ways—all equally valid—in which this cycle may be divided. Here we will divide it into identification, preparation and analysis, appraisal, implementation, and evaluation. The sequence is adapted from an article by Baum (1978).

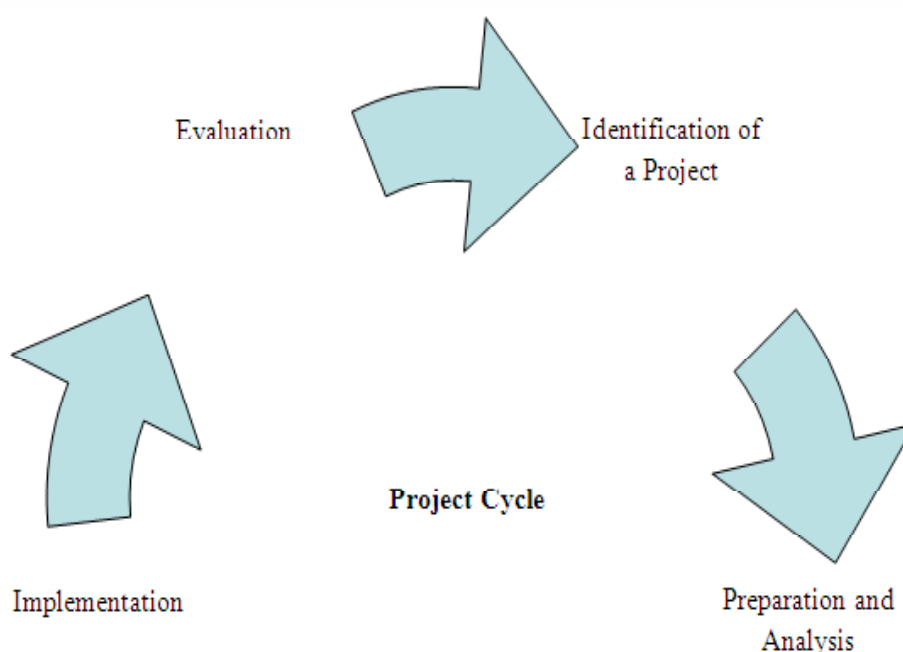


Fig. 1.1: The Project Cycle Management

(i) Identification

The first stage in the cycle is to find potential projects. There are many, many sources from which suggestions may come. The most common will be well-informed technical specialists and local leaders. While performing their professional duties, technical specialists will have identified many areas where they feel new investment might be profitable. Local leaders will generally have a number of suggestions about where investment might be carried out. Ideas for new projects also come from proposals to extend existing programs. A program to develop water resources will probably lead to suggestions of additional areas for irrigation. An existing land settlement program will probably generate suggestions of new areas for settlement.

Suggestions for new projects usually arise because some agricultural products are in short supply—or will be in a few years if production is not expanded or imports increased. The analysis may be based on general knowledge or upon a more systematic examination of market trends and import statistics. In addition, many countries have development banks intended to encourage growth of domestic industry. Often local firms will come to these banks with food processing proposals for which they are seeking finance.

Frequently, a separate sector survey of the current situation in agriculture will indicate what initiatives are needed. Such surveys may be undertaken with the help of an international agency or some agency for bilateral assistance. The sector survey will examine the current status of agriculture, project future needs for agricultural products over the next decade or so, and consider programs to improve the quality of rural life. It will examine prospects for expanding agricultural exports by considering potential increases in production and the outlook for marketing possibilities, and it will identify the gaps in existing plans and programs. The survey will probably generate suggestions about new areas for investment and the relative priority to be given different initiatives. It may even identify specific projects, especially larger ones, that merit consideration for future investment.

Occasionally one hears that there is a lack of projects available for investment in developing countries. Usually there is no shortage of proposals for projects that have been identified. But there may be a shortage of projects prepared in sufficient detail to permit implementation.

(ii) Preparation and analysis

Once projects have been identified, there begins a process of progressively more detailed preparation and analysis of project plans. This process includes all the work necessary to bring the project to the point at which a careful review or appraisal can be undertaken, and, if it is determined to be a good project, implementation can begin. In the preparation and analysis of projects, consideration will be given to each of the aspects discussed earlier.

The usual first step in project preparation and analysis is to undertake a feasibility study that will provide enough information for deciding whether to begin more advanced planning. The detail of the feasibility study will depend on the complexity of the project and on how much is already known about the proposal. Quite often a succession of increasingly detailed feasibility studies will be needed. The feasibility study should define the objectives of the project clearly. It should explicitly address the question of whether alternative ways to achieve the same objectives may be preferable, and it will enable project planners to exclude poor alternatives. The feasibility study will provide the opportunity to shape the project to fit its physical and social environment and to ensure that it will be high yielding.

Even at this early stage, the kind of financial and economic analyses discussed in this unit should be brought into play. As projects are planned in greater and greater detail, the investment of time and money becomes more and more substantial, and the expectations of vested interests continue to grow. Being faced only at a late stage in the planning process with the decision to accept or reject a project on financial or economic grounds is obviously an uncomfortable position to be in. Far better that the financial and economic analyses enter early in the planning process, so that the feasibility studies introduce these aspects in the project plan.

The staff needed to work on feasibility studies will depend on how complex the studies are. To start, a single staff member may make a preliminary

estimate in a relatively short time. Later the services of a small team, or perhaps outside consultants, may be engaged.

Once the feasibility studies have indicated which proposed project will likely be worthwhile, detailed planning and analysis may begin. By this time the less promising alternatives will have been eliminated, but even at this point the selected project will continue to be redefined and shaped as more and more becomes known. This is the stage at which detailed studies will commence-the carefully done soil surveys, the detailed hydrological analyses, the thorough examination of cropping patterns, the month-by-month estimates of labor requirements, the detailed farm budgets, and so forth. Again, all the aspects of analysis noted in the last section must be considered and correlated so that realistic estimates can be made of how the project might be implemented and of its likely income-generating capacity.

Detailed planning takes time, often a year or two or longer for complex agricultural projects. It may also be quite expensive. In agriculture, preparing the detailed project plan may well cost 7 to 10 percent of the total project investment. Yet thorough preparation increases a project's efficiency and helps ensure its smooth implementation in the future, so that the additional time and money required will probably be returned many times over by the increased return from the investment. Hastily prepared, superficial analyses will very likely yield projects that fall behind schedule, have lower returns, and waste scarce resources.

Preparation of the plan should itself be planned so that delays can be avoided and resources conserved. The timing of special studies needs to be considered, and the services of outside consultants should be scheduled so they will be available when needed-but not before the consultants' specialized knowledge can be used. The project may be prepared by a special team assembled for the purpose and given sufficient time and resources, or it may be prepared by a consulting firm or a technical assistance agency such as the Investment Centre of the Food and Agriculture Organization (FAO).

(iii) Appraisal

After a project has been prepared, it is generally appropriate for a critical review or an independent appraisal to be conducted. This provides an opportunity to reexamine every aspect of the project plan to assess whether the proposal is appropriate and sound before large sums are committed. The appraisal process builds on the project plan, but it may involve new information if the specialists on the appraisal team feel that some of the data are questionable or some of the assumptions faulty. If the appraisal team concludes that the project plan is sound, the investment may proceed. But if the appraisal team finds serious flaws, it may be necessary for the analyst to alter the project plan or to develop a new plan altogether.

If a project is to be financed by an international lending institution such as the World Bank or by a bilateral assistance agency, such an external lender will probably want a rather careful appraisal even if it has been closely associated with earlier steps in the project cycle. The World Bank, for

example, routinely sends a separate mission to appraise proposed projects for which one of its member governments intends to borrow.

(iv) Implementation

The objective of any effort in project planning and analysis clearly is to have a project that can be implemented to the benefit of the society. Thus, implementation is perhaps the most important part of the project cycle. It is also clear, however, that considerations of implementation and project management are far too extensive for discussion here. Yet there are some aspects of implementation that are of particular relevance to project planning and analysis. The first, obviously, is that the better and more realistic a project plan is, the more likely it is that the plan can be carried out and the expected benefit realized. This emphasizes once again the need for careful attention to each aspect of project planning and analysis.

Second, project implementation must be flexible. Circumstances will change, and project managers must be able to respond intelligently to these changes. Technical changes are almost inevitable as the project progresses and more is known about soils, their response to nitrogen applications, susceptibility to waterlogging, and the like. Price changes may necessitate different cropping patterns or adjustments in inputs. Other changes in the project's economic or political environment will alter the way in which it should be implemented. The greater the uncertainty of various aspects of the project, or the more innovative and novel the project is, the greater the likelihood that changes will have to be made. Even as project implementation is under way, project managers will need to reshape and replan parts of the project, or perhaps the entire project. All of the general considerations we have discussed, as well as the analytical tools we will take up in detail in the following chapters, must be brought into play once again. Implementation is a process of refinement, of learning from experience-in effect, it is a kind of "mini-cycle" within the larger project cycle we have outlined.

Project analysts generally divide the implementation phase into three different time periods. The first is the investment period, when the major project investments are undertaken. In agricultural projects this usually extends three to five years from the start of the project. If the project is to be financed with the assistance of a loan from an external financing agency, the investment period may coincide with the agency's period for loan disbursements. Then, as its production builds up, the project is spoken of as being in the development period. This often takes an additional three to five years, but it may be extended if the project involves cattle herds, tree crops, or other investments with long gestation. The duration of the development period reflects not only physical factors but also the rate of adoption at which farmers take up new techniques. Once full development is reached, it continues for the life of the project. Usually the project life is keyed to the normal life of the major asset, although for practical reasons a project life rarely exceeds twenty-five to thirty years. Both the financial and economic analyses of the project relate to this time horizon.

(v) Evaluation

The final phase in the project cycle is evaluation. The analyst looks systematically at the elements of success and failure in the project experience to learn how better to plan for the future. Evaluation is not limited only to completed projects. It is a most important managerial tool in ongoing projects, and rather formalized evaluation may take place at several times in the life of a project. Evaluation may be undertaken when the project is in trouble, as the first step in a re-planning effort. It may be appropriate when a major capital investment such as a dam is in place and operating, even though the full implementation of the plan to utilize the water and power is still under way. Careful evaluation should precede any effort to plan follow-up projects. And, finally, evaluation should be undertaken when a project is terminated or is well into routine operation.

Evaluation may be done by many different people. Project management will be continuously evaluating its experience as implementation proceeds. The sponsoring agency-perhaps the operating ministry, the planning agency, or an external assistance agency-may undertake evaluation. In large and innovative projects, the project's administrative structure may provide a separate evaluation unit responsible for monitoring the project's implementation and for bringing problems to the attention of the project's management. Often the evaluation unit will include persons with planning skills who enable the unit to take part in any necessary re-planning. The evaluation unit may also be responsible for planning follow-up projects.

In many instances, the project's management or the sponsoring agency will want to turn to outside evaluators. University staff may be well suited to undertake the task. Whoever does the evaluation will want to read the relevant documents carefully and then have extensive conversations with those who have had a part in the project-planners, project managers, operating staff, farmers participating in the project, or local people affected by the project.

The extent to which the objectives of a project are being realized provides the primary criterion for an evaluation. The objectives cannot be accepted uncritically, however; the inquiry should consider whether the objectives themselves were appropriate and suitable. The evaluators will want to know if these goals were made clear to the planners and to project management.

The project plan should be reviewed to see if it was an appropriate one in light of the objectives set forth. Each objective should be examined to determine whether it was considered carefully and whether appropriate provision for it was made in the project plan. Was the technology proposed appropriate? Were the institutional, organizational, and managerial arrangements suited to the conditions? Were the commercial aspects properly considered? Were the financial aspects carefully worked out on the basis of realistic assumptions, and were the economic implications properly explored? How did the project in practice compare with each aspect of the project analysis?

The evaluation should consider the response of project management and the sponsoring agencies to changing circumstances. Did management respond

quickly enough to changes? Was its response carefully considered and appropriate? Did the institutional and organizational structure in the project permit a flexible response? How could the project's structure be altered to make the response to change more flexible and appropriate in the future?

From the evaluation should come carefully considered recommendations about how to improve the appropriateness of each aspect of the project design so that plans for project implementation can be revised if the project is ongoing and so that future projects can be better planned if the project evaluated has been completed.

1.6 PROJECT APPRAISAL TECHNIQUES

Project Appraisal

Project appraisal is the effort of calculating a project's viability. Appraisal involves a careful checking of the basic data, assumptions and methodology used in project preparation, an in-depth review of the work plan, cost estimates and proposed financing, an assessment of the project's organizational and management aspects, and finally the viability of project. The project appraisal criteria can be divided under two heads:

(1) Non-Discounting Technique

Urgency

Payback Period

Accounting Rate of Return

Debt Service Coverage Ratio

(2) Discounting Criteria Technique

Net Present Value

Benefit Cost Ratio

Internal Rate of Return

Annual Capital Charge

Now we will discuss each of the techniques in detail

1.6.1 Non-Discounting Techniques

(i) Urgency

According to this criterion, the projects that are more urgent get preference over those that are less urgent. However, one of the problems in using this criterion is to judge the urgency of any project. The decision taken may be subject to the personal bias of the decision maker. In view of this limitation, it should not be used for investment decision making.

(ii) Payback Period

In simple terms, the payback period is the length of time required to recover the initial cash outlay on the project. If the cash inflows are constant, then the payback period is calculated by dividing the initial outlay by the annual

cash inflow. For example, a project which has an initial cash outlay of Rs 10,00,000 and a constant annual cash inflow of Rs 3,00,000 has a payback period of : $10,00,000 / 3,00,000 = 3.5$ years.

If the cash flow is not constant, e.g. if a project involves a cash outlay of 6,00,000 and generates cash inflow of Rs 1,00,000, Rs 1,50,000, Rs 1,50,000 and Rs 2,00,000 in the first, second, third and the fourth years respectively, its payback period is four years because the sum of cash inflow during four years is equal to the total outlay.

Decision making:

According to the payback period criterion, the shorter the payback period, the more desirable is the project. Firms using this criterion, generally specify the maximum acceptable payback period.

Evaluation of this method:

It is simple in concept and application.

It favours those projects that generate substantial inflows in earlier years and discriminate against projects that bring substantial cash flows only in later years.

As this criterion emphasises on earlier cash flows, it may be a good criterion when the firm is pressed with the problem of liquidity.

- It fails to consider the time value of money thus violating the most basic principle of financial analysis which says that cash flows occurring at different points of time can be added or subtracted only after suitable compounding and discounting.
- Since payback period is the measure of a project's capital recovery, it may divert attention from profitability.

In spite of the shortcoming of not using the time value of money, payback period is used with advantage in appraising investments for the following reasons:

- The payback period may be considered roughly as the internal rate of return when annual cash flow is constant and the life of the project fairly long
- The payback period is somewhat akin to the breakeven point.
- The payback period also gives information about the rate at which the uncertainty associated with the project is resolved. The shorter the payback period, the faster the uncertainty associated with the project is resolved.

(iii) Accounting Rate of Return

The accounting rate of return or the simple rate is the measure of profitability which relates income to investment, both measured in accounting terms. As there are various ways of measuring income and investment, there are a large number of measures for accounting rate of return. The commonly used ones are given:

1) Average income after tax

Initial investment

- 2)
$$\frac{\text{Average income after tax}}{\text{Average investment}}$$
- 3)
$$\frac{\text{Average income after tax but before interest}}{\text{Initial investment}}$$
- 4)
$$\frac{\text{Average income after tax but before interest}}{\text{Average investment}}$$
- 5)
$$\frac{\text{Average income before interest and taxes}}{\text{Initial investment}}$$
- 6)
$$\frac{\text{Average income before interest and taxes}}{\text{Average investment}}$$

Decision making:

The higher the accounting rate of return, the better the project.

Evaluation:

- It is simple to calculate.
- It is based on accounting information which is readily available.
- It considers benefits over the entire life of the project.
- Though the income data of the entire life of the project is required, one can work out accounting rate of return even if the complete income data is not available by taking income from a typical year.

Disadvantages of accounting rate of return:

- It does not take into account the time value of money.
- There are numerous measures of accounting rate of return which can create confusion.

(iv) Debt Service Coverage Ratio

The debt service coverage ratio is generally used to find the financial worthiness of the projects which need long term financing. The formula is $[\text{net profit} + \text{interest (on long term loan)} + \text{depreciation}] / [\text{interest (on long term loan)} + \text{principal loan}]$.

Decision Making: Generally, the financial institutions regard a debt service coverage ratio of 2 as satisfactory.

Drawback:

In DSCR, both the numerator and the denominator consist of a mixture of post tax and pre tax figures (profit after tax in the numerator and loan repayment instalment in the denominator are post tax figures and interest in both numerator and denominator is pre tax figure). It is difficult to interpret a ratio that is based on a mixture of post tax and pre tax figures.

1.6.2 Discounting Techniques

(i) NPV

The difference between the present value of cash inflows and the present value of cash outflows. NPV is used in capital budgeting to analyze the profitability of an investment or project. NPV analysis is sensitive to the reliability of future cash inflows that an investment or project will yield.

The formula for **NPV** is:

$$NPV = \sum_{t=0}^n \frac{(\text{Benefits} - \text{Costs})_t}{(1 + r)^t}$$

where:

r = discount rate

t = year

n = analytic horizon (in years)

Decision making:

If the NPV of a prospective project is positive, it should be accepted. However, if NPV is negative, the project should probably be rejected because cash flows will also be negative.

Features of NPV:

- The NPV is based on the assumption that the intermediate cash inflows of the project are re-invested at a rate of return equal to the firm's cost of capital.
- The NPV of a simple project decreases as the discount rate increases, the decrease in NPV however is at a decreasing rate.

Merits of NPV

- It takes into account the time value of money.
- It considers the cash flow stream in its entirety.
- The NPV's of various projects can be added. The NPV of a scheme consisting of two project A and B will simply be the sum of NPV's of these projects individually.

$$NPV (A+B) = NPV(A) + NPV(B).$$

To illustrate the calculation of net present value, consider a project which has the following cash flow stream:

Year	Cash Flow
0	-10,00,000
1	2,00,000
2	2,00,000
3	3,00,000
4	3,00,000
5	3,50,000

The cost of capital k for the firm is 10 percent. The net present value of the proposal is:

$$\begin{aligned} NPV &= 10,00,000 + \frac{2,00,000}{(1.10)^0} + \frac{2,00,000}{(1.10)^1} + \frac{3,00,000}{(1.10)^2} + \frac{3,00,000}{(1.10)^3} + \frac{3,50,000}{(1.10)^4} \\ &= -5273 \end{aligned}$$

Since the decision rule associated with the net present value is to accept the project if the net present value is positive and reject if it is negative, in this example, the decision should be to reject the project.

(ii) IRR

The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project. As such, IRR can be used to rank several prospective projects a firm is considering. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first.

IRR is sometimes referred to as "economic rate of return (ERR)". It is the discounted rate in the equation:

$$0 = \frac{CF_0}{(1+r)^0} + \frac{CF_1}{(1+r)^1} + \dots + \frac{CF_n}{(1+r)^n} = \sum \frac{CF_t}{(1+r)^t}$$

CF_t = cash flow at the end of the year t

r = discount rate

n = life of the project

In the internal rate of return, we set the net present value equal to zero and determine the discount rate which would also be the internal rate of return.

E.g. Consider the cash flow of a project

Year	Cash Flow
0	-1,00,000
1	30,000
2	30,000
3	40,000
4	45,000

The internal rate of return is the value of r which satisfies the following condition.

$$1,00,000 = \frac{30,000}{(1+r)} + \frac{30,000}{(1+r)^2} + \frac{40,000}{(1+r)^3} + \frac{45,000}{(1+r)^4}$$

The calculations of r consist of a process of trial and error. We try different values of 'r' till we find that the right hand side of the above equation is equal to the left hand side. By putting the value of 'r' as 12 we get 1,07,773, for 14 it is 1,03,046, for 15 it is 1,00,802 and for 16 it is 98,641. Since at 16 percent, the value is less than 1,00,000, we conclude that the value of 'r' lies between 15 % and 16%.

A 1 percent difference (between 15 and 16 percent) corresponds to a difference of 2161 (1,00,802 – 98,641). The difference between the net present value at 15% (1,00,802) and that at present target value (1,00,000) is (1,00,802 – 1,00,000) is Rs.802. This difference will correspond to a percentage difference of $802/2131 = 0.37$.

Adding this number to 15 percent we get the value as 15.37 percent.

You can think of IRR as the rate of growth a project is expected to generate. While the actual rate of return that a given project ends up generating will often differ from its estimated IRR rate, a project with a substantially higher IRR value than other available options would still provide a much better chance of strong growth.

IRRs can also be compared against prevailing rates of return in the securities market. If a firm can't find any projects with IRRs greater than the returns that can be generated in the financial markets, it may simply choose to invest its retained earnings into the market.

The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project. As such, IRR can be used to rank several prospective projects a firm is considering. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first.

(iii) Benefit-Cost Ratio (BCR)

A Benefit Cost Ratio is an indicator, used in the formal discipline of [cost-benefit analysis](#), that attempts to summarize the overall [value for money](#) of a project or proposal. A BCR is the ratio of the benefits of a project or proposal, expressed in monetary terms, relative to its costs, also expressed in monetary terms. All benefits and costs should be expressed in discounted [present values](#).

The benefit-cost ratio (BCR) represents the ratio of total benefits over total costs, both discounted as appropriate. The formula for calculating BCR is:

$$\text{BCR} = \frac{\text{PV}_{\text{benefits}}}{\text{PV}_{\text{costs}}}$$

where:

$\text{PV}_{\text{benefits}}$ = present value of benefits

PV_{costs} = present value of costs

In other words, since the present value of costs is nothing but the initial investment, the BCR may be defined as the ratio of present value of benefits to initial investment.

To illustrate the calculation of this measure, let us consider a project which is being evaluated by a firm that has a cost of capital of 12 percent.

The initial investment in the project is Rs1,00,000.

Year	Benefits
Year 1	25,000
Year 2	40,000
Year 3	40,000
Year 4	50,000

The benefit cost ratio of this project will be

$$\text{BCR} = \frac{25,000}{(1.12)} + \frac{40,000}{(1.12)^2} + \frac{40,000}{(1.12)^3} + \frac{50,000}{(1.12)^4}$$

$$= \frac{1,00,000}{1.145}$$

Decision making:

If BCR is >1, the project should be accepted and would be beneficial.

If BCR =1, we interpret it as being indifferent.

If BCR <1, the project should be rejected.

The BC ratio is preferable to NPV as this criterion measures per rupee of outlay and it can discriminate between large and small investments.

Check Your Progress 2

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. What are the advantages of payback period?

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2. Write the three phases in extension programme planninWhat is Benefit Cost ratio? What is the decision making criteria while using BC ratio?

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1.7 LET US SUM UP

Projects are the cutting edge of development. In this unit we discussed about the meaning of projects and various aspects to be considered while preparing the project. Many people are uncertain about the difference between a project and a programme. In this unit we have discussed in detail the difference between a project and a programme. This unit also discussed in detail the various stages of project cycle. The various discounting and non-discounting techniques of project appraisal have also been discussed.

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1.9 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress-1

1. Projects are an investment activity in which financial resources are expended to create capital assets that produce benefits over an extended period of time.
- 2 The technical aspect of any project considers both input supply side and output delivery side. For example if you want to take up an agricultural project in a region, you may have to examine the soil type of the region, water availability, crops grown, livestock breed suitable for the area, pests prevalent in the area etc.

Check Your Progress-2

1. Payback period is used with advantage in appraising investments for the following reasons:

The payback period may be considered roughly as the internal rate of return when annual cash flow is constant and the life of the project fairly long

The payback period is somewhat akin to the breakeven point.

The payback period also gives information about the rate at which the uncertainty associated with the project is resolved. The shorter the payback period, the faster the uncertainty associated with the project is resolved.

2. A BCR is the ratio of the benefits of a project or proposal, expressed in monetary terms, relative to its costs, also expressed in monetary terms. The benefit-cost ratio (BCR) represents the ratio of total benefits over total costs, both discounted as appropriate.

UNIT 2 MONITORING

Structure

- 2.1 Introduction
- 2.2 Meaning and Scope of Monitoring
- 2.3 Monitoring: What, Why, When and by Whom
- 2.4 Basic Concepts and Elements in Monitoring
 - 2.4.1 Basic Concepts in Monitoring
 - 2.4.2 Basic Elements in Monitoring
- 2.5 Types of Monitoring
- 2.6 The Techniques of Monitoring
- 2.7 Approaches and Types of Monitoring Indicators
 - 2.7.1 Approaches to Monitoring Indicators
 - 2.7.2 Types of Monitoring Indicators
- 2.8 Indicators of Monitoring in Development Programmes
 - 2.8.1 Capability Indicators
 - 2.8.2 Performance Indicators
- 2.9 Monitoring and Progress Reporting
- 2.10 Let Us Sum Up
- 2.11 References and Selected Readings
- 2.12 Check Your Progress – Possible Answers

2.1 INTRODUCTION

Projects are the ‘cutting edge’ of development. The most difficult single problem of project managers is the proper implementation of development programmes and projects. However well a project has been conceived and planned, if the implementation is not proper, it will result in inefficient and wasteful loss of scarce resources. India has been a fore runner in formulating enormous number of development programmes and projects in various sectors particularly in agriculture, rural development, health and family welfare, education, women and child development, drinking water and other related poverty alleviation programmes. Review of these projects suggests that monitoring and appropriate mid course corrective measures are central to achieving project goals. In the light of the above, Monitoring and Evaluation (M&E) is increasingly recognized as an indispensable tool of both project and portfolio management. There is a wide felt need to improve the performance of development projects. M&E provides a basis for accountability in the use of development resources and is an integral and important part of the project cycle. No project can be complete or successful without a proper M & E. According to World Bank (2004) “Monitoring and

Evaluation (M&E)” of development activities provide government officials, development managers and civil society with better means for learning from past experience, improving service delivery, planning and allocating resources, and demonstratives results as part of accountability to key stakeholders. Within the development community there is a strong focus on results – this helps explain the growing interest in M & E.

After studying this unit, you will be able to:

- explain what, why, when and how of monitoring;
- identify key elements in monitoring of development programmes; and
- discuss various types of monitoring of development programmes.

2.2 MEANING AND SCOPE OF MONITORING

The word “monitor” is derived from the Latin word meaning to ‘warn’ and “evaluate” stems from the word ‘value’. *Monitoring* is an integral and important part of a management information system. Managers require information to keep track of development programme and to guide its course of action. A *management information system* is a scheme by which the “right” information is obtained in the right amount, at the right time and is made available to the right person or persons. An information system is usually created in modern organizations to cater to the information needs of management.

Management information system (MIS) needs include six kinds of information: (1) diagnostic information (why a situation is as it is), (2) implementation information (physical and financial or input information), (3) utilization information, (4) impact information, (5) situation information, and (6) information for review.

‘Monitoring’, it is useful to realize, is only one of management’s sources of information. A monitoring system is a subsystem of a management information system and has several distinguishable components.

A conceptual framework for monitoring consists of four principal components: (i) an organization, (ii) a monitoring and evaluation (M & E) unit, (iii) an information needs matrix, and (iv) a monitoring and evaluation cycle. Top management receives information from the monitoring unit and from other formal and informal sources. This influences programme implementation, leads to better programme planning, and ensures sustainability of programmes. Ultimately this leads to institutional development, which has been defined as “the process of improving the ability of institutions to make effective use of available human and financial resources”.

2.3 MONITORING: WHAT, WHY, WHEN AND BY WHOM

Monitoring is a continuous / periodic review and surveillance by the project management, at every level of the implementation of an activity to ensure that input deliveries, work schedules, targeted outputs and other required actions are proceeding according to plan. Availability of a ‘plan’ is a pre-condition for monitoring.

Another way of defining Monitoring is that it is a process of measuring, recording, collecting, processing and communicating information to assist project management decision-making. To be precise and brief, “monitoring system is an information system for management decision making”.

According to Shapiro “Monitoring is the collection and analysis of information as a project progresses. It is aimed at improving the efficiency and effectiveness of a project or organization. It is based on targets set and activities planned during the planning phases of work. It helps to keep the work on track and can let management know when things are going wrong. If done properly, it is an invaluable tool for good management and it provides a useful base for evaluation.”

According to PSO “Monitoring is the systematic collection, analysis and use of information from projects and programmes for these basic purposes: (i) learning from the experiences acquired (ii) accounting internally and externally for the resources used and the results obtained and (iii) taking decisions.”

Thus, monitoring is a management function, which begins with the start of a project and ends with the completion of the project, but it is a continuous process during the implementation of project. The key requirement for Monitoring is an ‘ACTION PLAN’ without which monitoring is not possible. The whole gamut of monitoring is explained in the Table 2.1

Table 2.1: Gamut of Monitoring

What?	Check, review, overview, keep track, observe, control, guide, correct, inspect, supervise, verify, feed-back, follow-up of the	Progress of programme implementation with reference to action plan.
Why?	To ensure successful implementation of the project by identifying shortfalls, deviations, problems and the reasons thereof to	Take appropriate corrective/ remedial action to keep the project on track
When?	During the implementation of the project continuously/ periodically	From inception till completion of the project (concurrently with project implementation)
Who?	By the project management team at different levels	Including beneficiaries (participatory monitoring)

A project’s operation, performance, and impacts are the aspects of concern in monitoring with a view to keep track on the technical and economic ‘efficiency’ of the project. This is carried out in terms of:

Whether the various tasks are carried out according to schedule;

Whether project results are likely to lead to realization of project objectives;
and

Whether project objectives / targets / execution needs adjustments.

Monitoring, therefore, is an essential tool for successful implementation of a project. During the process of monitoring, we identify the shortfalls, deviations and problems and causes for the same so as take appropriate remedial / corrective action.

Since monitoring is a management function, all those who are involved in the project implementations (who constitute the project management team at different

levels / sectors) will do the monitoring. This may include, even the beneficiaries when local groups / organizations have been formed as part of project strategy (e.g.: Village Forest Committees and Forest Protection Committees under JFM, Water Users Committee under irrigation projects, watershed associations , Village Education Committees, User Groups, Self Help Groups, etc). It is important to appreciate that monitoring is not an individual's function but a collective function. When all stakeholders, including beneficiaries are involved in monitoring, then it paves way for participatory monitoring. A monitoring and evaluation cycle is given in Fig. 2.1

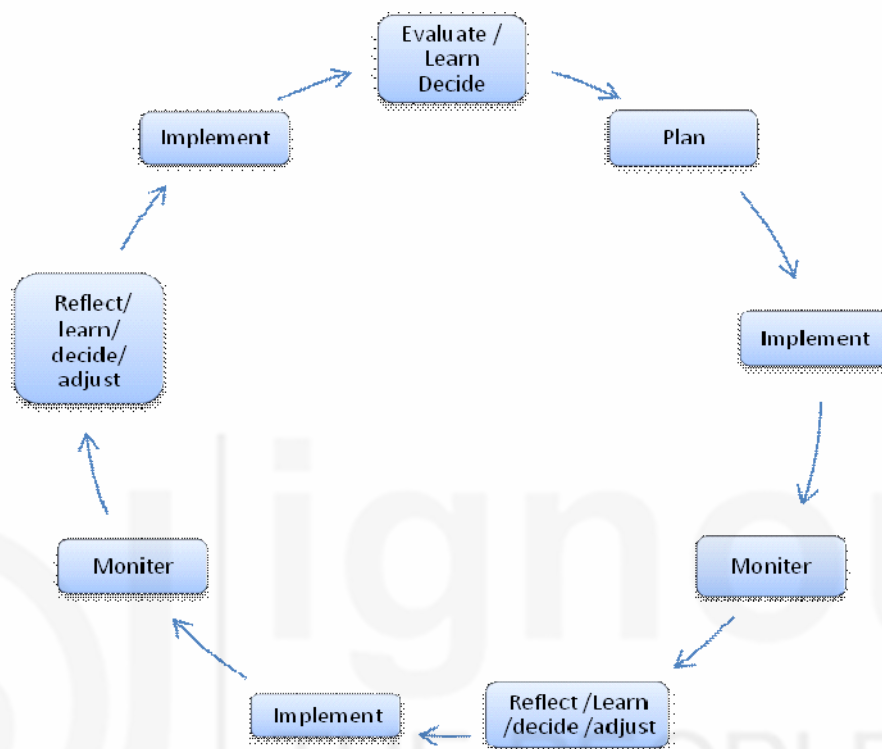


Fig. 2.1 : Monitoring and Evaluation Cycle (Source: Shapiro, J. *Monitoring & Evaluation*)

Till now you have read about the meaning and scope of monitoring, various gamuts of monitoring and monitoring and evaluation cycle. Now answer the questions in Check Your Progress-1.

Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. What do you mean by monitoring?

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2. Write the needs of monitoring in management information system (MIS).

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2.4 BASIC CONCEPTS AND ELEMENTS IN MONITORING

2.4.1 Basic Concepts in Monitoring

Four concepts are basic to monitoring and evaluation. They correspond, respectively, to (Ruthenburg, 1985, p. 120):

- a) Operational investment (e.g., investment in development per family)
- b) Operational efficiency (e.g., the number of visits, meetings, demonstrations, and trials, per development worker)
- c) Technical efficiency (e.g., the number of adopters, hectorage, output, and value added)
- d) Extension-induced changes (e.g., production, productivity, income, and income distribution)

Capability, effectiveness, and efficiency fall in the monitoring domain. Impact falls in the evaluation domain.

(i) Capability is the command that programme has over physical, financial, and human resources, enabling it to serve its clients (eg. the farmers, mothers, children). It is reflected by development outreach, intensity, technical competence, and physical and financial resources. Development performance depends directly upon its capability.

(ii) Effectiveness is defined as “the degree to which goals are attained”. Development has many goals such as social goals (e.g., farmer/ family welfare) and economic goals (e.g., increased income), among these, operational goals (e.g., physical and financial targets) are of special significance because their attainment makes realization of other goals possible.

(iii) Efficiency is usually measured by the rates at which farmers target group adopt recommended developmental practices. Adoption rates of varying degrees of complexity can be conceived (Casey & Lury, 1982).

(iv) Impact can be measured by a simple indicator, like Yield of a Crop per Hectare, Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR), Minimum Levels of Learning (MLL), and Learning Achievement, etc. Such indicators provide ultimate tests for the success of any sectoral programmes.

2.4.2 Basic Elements in Monitoring

Let us now discuss in detail the various elements of monitoring. In the study of Monitoring and Evaluation, the following basics (structure of a project) need to be understood clearly. To begin with, the purpose of a programme is to convert a set of RESOURCES into desired RESULTS.

Resources are INPUTS and results are OUTCOMES (This term is used here in a generic sense though it has more specific connotation which will be discussed later). Inputs to outcomes happen in a sequence as detailed below:

- (i) **Input:** Goods, Funds, Services, Manpower, Technology and other resources provided in a project with the expectation of OUTPUTS.
- (ii) **Results:** Certain things happen immediately, and certain things ultimately, while certain things in between these two (intermediate). According to this sequence, results can be grouped into three broad categories, such as productivity, production and income.
- (iii) **Output (Immediate results):** Specific products or services, which an activity is expected to produce from its inputs in order to achieve the set objectives (increased irrigation, fertilizer use, health facility created etc).
- (iv) **Effect:** Outcome of the use of the project outputs above the realization of expected effects in a project will lead to desired impact – Intermediate results. In the recent M & E literature effects, are described as outcomes.
- (v) **Impact:** Outcome of Project Effects (broad long term objectives: Standard of living and reducing poverty both at individual and community level) - Ultimate results. Impact is described as the outcomes for a community or region than on individuals. It may include direct and indirect as well as primary, secondary and tertiary level (See the Box -1).

Box 1 : An Example of Irrigation Project Monitoring		
Let us assume an Irrigation dam has been built and has become operational. A sequence of results flow in the coming years / month in the Command Area of the dam. In this example, we illustrate the sequence discussed above.		
Sequence of Results		Parameter
Immediate Result(s)	INPUT	Irrigation Dam
	OUTPUT	i) Irrigated Area
		ii) Change of crop pattern iii) Use of Agri. Inputs (Seeds, fertilizers, chemicals, labour etc.)
Intermediate Result(s) (Medium Term)	EFFECT (Purpose/ outcomes)	i) Productivity ii) Production iii) Income
Ultimate Result(s) (Long Term)	IMPACT (Goals)	Overall Socio-Economic Development (Agro industries, investment in agri-business, infrastructure, social indicators)

In any project, this sequence (input - output- effect (outcomes) - impact) is inbuilt, ensuring that these steps occur is a primary 'condition' for the success

of a project. Again, all projects are made on certain ‘assumptions’ i.e. if we provide inputs, recipients will use it properly, and produce necessary outputs so that the outputs will result in increased income and the income will boost the standard of living of people. There are also other factors like vagaries of monsoon, price fluctuation, changing political environment, etc., which are described as ‘risks’ that will affect the project outcomes. It is, therefore, necessary to evolve a mechanism in every project that necessary conditions prevail, assumptions come true and effects of risk are reduced by providing cushions for the shock. Such a mechanism is called ‘Monitoring’.

2.5 TYPES OF MONITORING

Monitoring can be divided into two types:

- i. **Beneficiary Contact Monitoring:** Beneficiary Contact Monitoring is the key to successful overall project monitoring. Physical and financial monitoring — the first main component of a management information system - generally measures a project’s provision and delivery of services and inputs. But project managers also need to know whether their services are being accepted and how they are being integrated into, for example, farmers’ systems.

Beneficiary contact monitoring is taken up:

To maintain records for each participant (feasibility of credit, Health, Education, Nutrition and similar projects) and to analyze these periodically to monitor the penetration of the service and the establishment of a clientele.

To establish a regular schedule of surveys to enable managers to measure the progress of a project and the responses of its beneficiaries. Formal sampling techniques must be used to get statistically significant data from these surveys.

To use informal interviews to alert managers to outstanding success stories or problems.

- ii. **Process Monitoring:** As discussed earlier, project implementation begins with deployment of inputs/ resources to realize some specific outputs. The conversion of inputs into outputs will involve certain methods, activities, and completion of certain events. This happens in a sequence as below.

Process: It is the way in which activities are conducted. Processes are continuous and cuts across activities. For example rapport building as a process is relevant to village entry activities, SHG formation activities, training, etc.

Milestones: These are a series of achievements that leads to a completion of stage in an activity (an event).

Activities: These are what we do to deliver the output. Activities always have a beginning and an end and are associated with numbers linked to a budget.

Output: This is what a project delivers before the close of the project.

Process monitoring is an approach that ensures that processes are steered to achieve the desired results and that quality is maintained throughout. As long as there is a focus, not only on the inputs and outputs, but the way in which the outputs are being delivered, and quality indicators are devised and tracked, process monitoring would be useful and successful.

Process Monitoring is often confused with conventional progress monitoring. Conventional progress monitoring focuses on physical, financial and logistic aspects of projects, while process monitoring deals with critical processes, which are directly related to the project's objectives. For example, progress monitoring looks at the number of training sessions held, or the / percentage of work completed on a water supply scheme; while Process Monitoring evaluates the quality of training or the level of community involvement in identification, design, site selection, and supervision of construction. An ideal M&E system contains elements from both progress and Process Monitoring.

Process Monitoring informs project management of the nature of changes needed to improve project responsiveness to community demands, maximize impact and improve the likelihood of sustainable outcomes. It evaluates the quality and effect of project interventions and outcomes.

2.6 THE TECHNIQUES OF MONITORING

Broadly, following techniques are used for the purpose of monitoring:

(i) Regular progress report

Progress reports submitted by field staff and records at District and Block levels should contain physical and financial progress vis-à-vis targets, coverage by blocks, composition of groups (SC/ST/ Others), activities, etc.

From the financial and physical progress report, it is often possible to make a rapid assessment of whether, and to what extent, the original activities of the scheme have been fulfilled, and whether it is working successfully within the allocated budget. Disbursement of funds for the scheme can be matched against other data/schemes.

(ii) Monitoring staff performance (review)

Monitoring the staff performance can ensure that individuals are effectively employed to fulfill given tasks. Ideally, all those employed in a project should meet regularly, to discuss their progress, and match this against targets and objectives, and discuss problems and possible changes.

(iii) Tour reports by field staff

Often, the most useful information about qualitative aspects of a programme are obtained from the tour reports submitted by field staff; this is especially true in the case when the project is very small and the participants may possess only low levels of education and literacy.

(iv) Participant observation

The field staff may stay in the villages and observe the groups closely so as to obtain sensitive, first-hand insights.

(v) Reports from visitors

The project staff ensures that all visitors to the project area (Project Director, State Level Officials, Researchers, etc) provide a short report on their impressions of the schemes. These can provide insights/information on new developments, exchange of experiences and help in further developing the programme.

(vi) Interviews

Group members and community leaders should be interviewed on their attitude towards the scheme and resultant behavioral changes.

(vii) Participatory monitoring

In this latest technique, the beneficiaries themselves are made partners in monitoring evaluation. Project staff and beneficiaries discuss and assess the performance together, in order to understand how they have performed, what the problems are and what the future holds for them. The project staff mainly plays a guiding role to formulate appropriate questions and eliciting answers. For example, the group can be prompted to draw inferences from the bank record books, savings books, etc.

(viii) Key informants

In addition to our regular contacts (as per protocol, Sarpanch / VDO), we must try to interact with other people who may be useful sources of information e.g. Village Teacher, Village Postmaster, Women, Kirana Shop, SHGs etc.

(ix) Complaints/grievances petitions

Many a times, complaints and grievances petition from people in general and target group in particular may throw some light on the actual performance of the scheme. Every project should make provisions for such source of information as part of monitoring mechanism.

In this section you have read about the concepts, elements, types and techniques of monitoring. Now try and answer the questions in Check Your Progress 2.

Check Your Progress 2

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. What is the difference between effectiveness and efficiency of Monitoring?

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2. Name different techniques and types of Monitoring.

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2.7 APPROACHES AND TYPES OF MONITORING INDICATORS

Monitoring involves collection of huge amount of data from the field. All this information have to be analyzed, processed and presented to the management in concise and precise form for management decision making. Such a condensed and single piece of information will be called as indicator. Indicators are measures of change. They help us to substantiate the achievements of the development / extension work, through meaningful and trustworthy statements about what has been done and the benefits of that. Such statements may vary vastly from brief quantitative measures (even one number only e.g. percentage) to elaborate verbal description (statement by beneficiaries). Indicators are simplified approximation of achievements or phenomena that are examined (Dale, 2004). Indicators help us to specifically measure the intended levels of input use (quantity, quality and time), the resulting outputs, effects and impacts with reference to planned activities and goals/ objectives. Developing indicators is a necessary pre-condition for effective monitoring.

2.7.1 Approaches to Monitoring Indicators

There are two approaches to indicator development: the inductive and the deductive. In the inductive approach, a system of social, economic, and demographic statistics is created and a wide range of indicators is developed on the basis of the statistics available. In the deductive approach, the areas of interest are first identified, and then requisite indicators are developed (Misra, 1999).

In monitoring, both the inductive and the deductive approaches are followed; that is, indicators are developed on the basis of available statistics, and some (for example, performance indicators) are developed as a result of specially collected data.

Broadly following types of approaches are popular in monitoring.

a) Traditional (Administrative) Approach

Based on routine administrative reporting, this approach is concerned with physical and financial achievements in a programme. Its primary weaknesses include multiplicity of reports by programme personnel and absence or neglect of beneficiary contact. It is being increasingly replaced by other approaches.

b) Zones-of-Concentration Approach

The Cernea and Tepping approach, introduced in 1977, concentrates on three zones: (1) visits, as the final outcome of extension efforts; (2) recommendations, as the content of the visit and means towards the end yields; and (3) yields, as the eventual consequence of the development effort (Cernea & Tepping, 1977).

c) Methodological Approach

The Slade and Feder approach, introduced in 1981, builds upon the zones-of-concentration approach and suggests a monitoring survey early in each cropping season, a monitoring-cum-evaluation survey in each cropping season at the time of harvest, specific indicators, and reporting. Working manuals are a characteristic feature of this approach (Slade & Feder, 1985).

d) Expanded Monitoring Approach

Casley and Kumar suggested in 1987 an expansion of the monitoring function to cover not only physical and financial information, but also beneficiary contact information and project diagnostic studies. Under this approach, there is greater emphasis on monitoring and less on evaluation. Project diagnostic studies are a novel feature of this approach.

e) Adoption Rates Approach

Murphy and Marchant suggested in 1988 an approach which concentrates on adoption rates as key indicators. This approach moves away from trying to monitor agricultural results and concentrates on directly monitoring the provision of and response to project services. Under this approach, extension service is treated as the “medium” and the recommendations as the “message.”

f) Marketing Approach

Lee (1990) has suggested an approach which is based on market segmentation, a standard technique in marketing. Under this approach, the need and likely demand for new technology are first assessed, and then target market segments are predicted. For example, 10 per cent of the targeted farmers are likely to readily adopt a new technology; a further 15 per cent are likely to adopt the technology when returns for wheat reach x dollars per ton; 40 per cent of the targeted farmers are likely to adopt the technology when they perceive that their peers have adopted it; and 35 per cent of the target market is not likely to adopt the technology at all in the next five years.

Among these approaches, Lee’s approach has much to commend it, because, it is based on careful assessment of the need for new technology, an exercise seldom under-taken by extension organizations.

2.7.2 Types of Monitoring Indicators

There are different types of indicators, for example, development indicators, socio-economic indicators, agricultural development indicators, and extension indicators. They range from general to specific concerns.

Indicators can be categorized into direct and indirect or proxy indicators, single and unitary or composite indicators; quantitative and qualitative indicators; primary, core, and supplementary indicators, input and output indicators; and monitoring and evaluation indicators.

Broadly following types of indicators used in monitoring

(i) Quantitative Indicators

Provide numeric information about a change in a situation. For example, number of village organizations formed, centimeters of rainfall last quarter, number of farmers using improved variety of wheat, etc.

(ii) Direct Indicators

Provide information, which expressly relates to what is being measured. If, for example, information on crop yield is required then crop yields are measured.

(iii) Indirect Indicators

Essential information, chosen from amongst many types of information to serve as substitutes (or proxy indicators) for answering questions or responding to statements that are difficult to measure. For example, if we are interested in measuring the level of poverty in a community, instead of choosing direct indicators for income, indirect indicators for poverty may be chosen, e.g. persons are poor if they have to hire themselves out as daily unskilled labour.

(iv) Process Indicators

Steps involved in planning, designing, collecting funds, construction and operation and maintenance (O&M) of a water supply scheme for example, are the processes involved in developing water supply infrastructure. Examples of process indicators are level of participation and inputs of community during planning.

(v) Progress Indicators

Seek to measure or monitor changes against stated targets. The number of trees planted, percentage of water supply scheme constructed, and O&M training sessions held are examples of progress indicators. Progress indicators are usually but not always expressed in quantitative terms.

(vi) Qualitative Indicators

Are largely descriptive statements about processes and outcomes. For example, what is the level of participation in village organization meetings? How are decisions made by the village organization? How are community needs assessed?

2.8 INDICATORS OF MONITORING IN DEVELOPMENT PROGRAMMES

The indicators of monitoring in development can be classified as given below:

2.8.1 Capability Indicators

Capability indicators must be monitored regularly not only to know the status of capability at a certain point in time, but also to determine changes in it over time. These indicators should be calculated annually. They involve only desk work because they are based on in-house data.

2.8.2 Performance Indicators

Performance indicators reflect operational and technical efficiency of development professionals. They can be grouped into two categories.

(i) Effectiveness Indicators. These can again be grouped into two sub-categories:

- a) Single indicators
- b) Unitary or composite indicators.

By definition, a single indicator will reflect an aspect of performance, while a unitary or composite indicator will reflect two or more aspects of performance. It may be useful to construct a unitary or composite indicator to

provide a consolidated view of effectiveness of development professionals to management, because management is often interested in having an overall view of effectiveness. These indicators reflect operational efficiency of developmental functionaries. An example from agriculture sector is given in Box 2 for your understanding.

Box 2 : Example of Operation, Performance and Impact of Agricultural Projects

In relation to agriculture, monitoring focuses on the operation, performance and impact of agricultural projects.

Project Operation: It embraces the many tasks performed regularly or intermittently which are essential for the proper functioning of a project. For example, the operation and maintenance of machinery and equipment, the delivery and distribution of project resources including farm inputs; credit and extension activities, and so on.

Project Performance: It refers to the level of achievement of project targets such as, area of land under cultivation, supply of irrigation water, cropping systems and intensities, extension and adoption rates, project yields and production levels.

Project Impact: It relates to the effects of project operation and performance on the rural people, both on and off a project, as indicated by changes in levels and distribution of farm yields, farm incomes, family nutrition and welfare, etc. It is also concerned with changes in the local environment and economy that arise from project operation and performance (e.g. soil salinity and erosion, changing farm input and product prices).

(ii) Efficiency Indicators. These indicators are based on adoption rates of recommended practices and reflect technical efficiency of developmental functionaries (Box 3). Let us discuss them by taking agriculture sector and farmers as beneficiaries. Performance indicators, as suggested here, should be calculated separately for contact farmers, other (non contact) farmers, and all (contact and non contact) farmers.

At one level, indicators of agriculture extension services are simple to devise with administrative records as the source of data. For example, the number of recipients of visits or training; the frequency of visits or length of training received by the recipients; the number (and ratios) of first-time recipients and repeat recipients. Of greater difficulty, both in terms of definition and measurement, is the derivation of indicators of the quality of delivery of extension input. A proxy for this is the rate of adoption of the advice or message conveyed.

The delivery of educational and health facilities can be measured not only by the number of buildings for providing these facilities and their staffing, but also by the number of persons attending these facilities for training, examination, treatment, etc. In these areas, the supply of the input becomes confounded with the usage or adoption rates. However, to the extent that attendance at the facility does not necessarily result in adoption of the treatment, e.g., family planning practices, the attendance or input supply data may be fruitfully used as a denominator in usage or adoption rate calculations, rather than the total population 'at risk'.

Up to this point, the monitoring system requires little in terms of surveys of beneficiaries; rather, it involves the maintenance and proper use of available records. The next set of indicators, however, moves the focus to beneficiary observation involving the use of the received inputs, and, in the case of credit, repayment performance. They include

- a) Input usage rates;
- b) Adoption rates; and
- c) Repayment rates.

The usage of physical inputs by the beneficiaries will require a survey to determine the practices adopted, e.g., seeding rates, method of planting crops to which the input was applied, and so on. It is desirable to keep the questions on usage simple, and not to confuse it with farm management or detailed study; simple questions can be put to a sample of sufficient size to provide valued estimates for the total beneficiary population.

Adoption rates are, perhaps, underexploited as monitoring tools. They are of use as a proxy for the success with which a message is communicated through training or extension visits, and are also relevant measures of acceptance of medical benefits given at clinics. In the simplest example, a member of the population may attend a clinic and depart with prescribed pills, but that is not to say that the pills will, in fact, be taken as instructed or that the course of treatment will be maintained after the initial experience is evaluated by the recipient. Follow-up contact with a sample of the recipients of the advice or prescription is then required. This is a task for the monitoring unit.

Adoption rates of varying degrees of complexity can be conceived. The simplest kind requires data relating to current year only. Thus, if:

T is the target number which should be reached,

A is the actual number reached,

D is the number adopting the recommended practice,

The following rates can be calculated:

$$\text{Performance index} = \frac{100A}{T} \quad (1)$$

$$\text{Penetration index} = \frac{100 D}{A} \quad (2)$$

$$\text{Achievement index} = \frac{100 D}{T} \quad (3)$$

The 100's are introduced to put the indexes in percentage form; and it will be noted that (3) = (2) (1) 100

For the monitoring of the repayment rates of credit, one common indicator is the collection index for an accounting period. It is dependent on the period and is of the form:

$$100. \quad \frac{\text{Volume of collections or repayments for the period}}{\text{Volume of loans or installments due in period}}$$

Another commonly used index is the percentage of the portfolio which is in arrears, obtained as follows:

$$100. \frac{\text{Total arrears at end of period}}{\text{Total loan portfolio at end of period}}$$

Box 3: Evaluation Indicators	
(i) Effectiveness Indicators	
(a) Single Indicators	
1. Awareness	Number of farmers aware of Village Extension Worker (percentage)
2. Visit	Number of visits by Village Extension Worker to farmers a) twice a month, b) once a month, and c) no visit (average)
3. Field Meetings	Number of meetings of Village Extension Worker with farmers in their fields (percentage)
4. Regularity	Number of meetings of Village Extension Worker with farmers on the fixed day (percentage)
5. Field Day	Number of field days organized by Village Extension Worker a) in preceding month, b) quarterly, and c) annually (average)
6. Demonstration	Number of a) method demonstrations, b) result demonstrations, and c) method-cum-result demonstrations organized by Village Extension Worker(i) in preceding month,(ii) quarterly, and(iii) annually
7. Supervision	Number of supervisory visits from Agricultural Extension Officers to Village Extension Worker in the field per month (average)
8. Research-Extension Linkage	Number of research-extension linkage workshops organized per month (average)
9. Farmer Training	Number of farmers trained in farmers' training centers (institutionalized training courses) per year (average)
(b) Unitary or Composite Indicators	
10. Effectiveness	Arithmetic average of selected extension effectiveness indicators, say, Awareness Indicator (know the Village Extension Worker), Visit Indicator (number of visits

	twice a month). Field Indicator (meeting place at farmers' fields), and Regularity Indicator (visit on the same day) (Misra, 1994)
(ii) Efficiency Indicators	
11. Performance Index	Actual number of farmers reached out of the target number which should be reached (Casley and Lury, 1982, p.7) (percentage)
12. Penetration Index	Number of farmers adopting the recommended practice out of the actual number reached (ibid. p.37) (percentage)
13. Achievement Index	Number adopting the recommended practice out of the target number of farmers (ibid. p.37) (percentage). Note that (13) = (12) x (11)
Productivity Indicators	
1. Yield	Yield per hectare for main crop(s) (average)
2. Productivity Index	Increase in yield over base year compared with base year (percentage)
(iii) Capability Indicators	
1. Coverage	Area under cultivation per Extension Worker
2. Intensity	Number of Farm Families per Extension Worker
3. Competence	Number of Graduate Extension Workers out of total number of Extension Workers (percentage)
4. Subject-Matter Specialist	Number of Subject-Matter Specialists per hundred Extension Workers
5. Research-Extension Ratio	Number of Agricultural Scientists per hundred Extension Workers
6. Monitoring	Number of Monitoring Unit Personnel per thousand Extension Workers
7. Gender Ratio	Number of Female Extension Personnel out of total number of Extension Personnel (percentage)
8. Equity	Number of Small and Marginal Farmers out of total number of Contact Farmers (percentage)

9. Mass Contact	Number of group meetings held per month per Extension Worker in a year(average)
10. Computerization	Number of personal computers in Extension Organization per thousand Extension Personnel
11. Print Media	Number of leaflets/pamphlets distributed per month per Extension Worker in a year (average)
12. Audio-Visual Media	Number of audio-visual (cinema/television) shows organized per month per Extension Worker in a year (average)
13. Training	Number of Extension Personnel out of total number of Extension Personnel trained in specialized training courses in a year (percentage)
14. Finance	Budgetary expenditure on Agricultural Extension out of total budgetary expenditure on agriculture per year (percentage)
15. Investment	Expenditure on Agricultural Extension as percentage of Agricultural Gross Domestic Product per year
16. Transport	Number of(i) bicycles, (h) motorcycles, and(iii) 4-wheel vehicles, per thousand Extension Workers

2.9 MONITORING AND PROGRESS REPORTING

Sometimes monitoring and progress reporting are misunderstood to be one and the same in view of certain common features. The similarities between the two are:

- a) Both are organized and systematic flow of data of different technical/ administrative operation in progress;
- b) Both can be quantitative and qualitative in their approach. But there are distinct differences between them.

Progress reports is a statement of facts giving the extent of achievements at any given point of time. The progress report may not explain how and why of deviations in achievements. When we start questioning such deviations monitoring mechanism gets activated. Thus progress reporting is an Important and initial tool in monitoring but not an end.

In this section you have read about the approaches and types of monitoring indicator, indicators of monitoring in extension and monitoring & progress reporting. Now try and answer the questions in Check your progress-3.

Check Your Progress 3

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. What are the approaches to develop indicators of Monitoring?

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2. Write different types of extension monitoring indicators?

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3. What do you mean by participatory monitoring?

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2.10 LET US SUM UP

Monitoring is an important aspect of project management system. It is a continuous activity for the project manager. This unit has dealt with in detail why, what, when and who of monitoring and also various types of approaches of monitoring. Further a detailed analysis of indicators of monitoring in extension and particularly agricultural extension is discussed. In the last session the differences between monitoring and progress reporting has been highlighted.

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2.12 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1. The word “monitor” is derived from the Latin word meaning to ‘warn’ and “evaluate” stems from the word ‘value’. Monitoring is a process of measuring, recording, collecting, processing and communicating information to assist project management decision-making.
2. Monitoring is useful to realize, is only one of management’s sources of information. Management information system needs include six kinds of information: (1) diagnostic information (why a situation is as it is), (2) implementation information (physical and financial or input information), (3) utilization information, (4) impact information, (5) situation information, and (6) information for review.

Check Your Progress 2

1

Effectiveness	Efficiency
1. It is the degree to which goals are attained. 2. Extension has many goals such as social goals (e.g., farmer/ family welfare) and economic goals (e.g., increased income). Among these, operational goals (e.g., physical and financial targets) are of special significance because their attainment makes realization of other goals possible.	1. In extension is usually measured by the rates at which farmers target group adopt recommended practices. Adoption rates of varying degrees of complexity can be conceived (Casey & Lury, 1982).

2. The following techniques are used for the purpose of monitoring. Like, regular progress report, monitoring staff performance, tour report, participants’ observation, and reports from visitors, interviews, participatory monitoring, key informants and complaints or grievances petitions.

Monitoring are two types. (i) Beneficiary contact monitoring and (ii) process monitoring

Check Your Progress 3

1. There are two approaches to develop indicator of monitoring. Like (i) the inductive and (ii) the deductive. In the inductive approach, a system of

social, economic, and demographic statistics is created and a wide range of indicators is developed on the basis of the statistics available. In the deductive approach, the areas of interest are first identified, and then requisite indicators are developed.

2. There are two types of monitoring indicators **in** Extension. Such as, (i) Extension Capability Indicators (ii) Extension Performance Indicators. Extension capability indicators must be monitored regularly not only to know the status of extension's capability at a certain point in time, but also to determine changes in it over time. Extension Effectiveness Indicators can again be grouped into two subcategories: (1) single indicators and (2) unitary or composite indicators. By definition, a single indicator will reflect an aspect of extension performance, while a unitary or composite indicator will reflect two or more aspects of extension performance.
3. **Participatory Monitoring:** In this latest technique, the beneficiaries themselves are made partners in monitoring evaluation. Project staff and beneficiaries discuss and assess the performance together, in order to understand how they have performed, what the problems are and what the future holds for them. The project staff mainly plays a guiding role to formulate appropriate questions and eliciting answers.



UNIT 3 EVALUATION

Structure

- 3.1 Introduction
- 3.2 What is Evaluation?
- 3.3 Appraisal vs. Monitoring vs. Evaluation vs. Impact Assessment
 - 3.3.1 What are we Evaluating?
- 3.4 Evaluation - Types and Designs
 - 3.4.1 Types of Evaluation
 - 3.4.2 Evaluation Designs
- 3.5 Evaluation - Data Collection Methods
 - 3.5.1 Conventional Methods
 - 3.5.2 Participatory Methods
- 3.6 Evaluation Approaches
 - 3.6.1 Challenges in Programme Evaluation
- 3.7 Let Us Sum Up
- 3.8 Keywords
- 3.9 References and Selected Readings
- 3.10 Check Your Progress – Possible Answers

3.1 INTRODUCTION

In the previous two units, we discussed the concepts of project appraisal and monitoring. The other concept which closely follows appraisal and monitoring is evaluation. The demand for evaluation of development programmes / projects is rising as funding agencies and stakeholders want to know from the development professionals:

What did you do with the money?

Why should we continue to fund development programmes / projects?

Are the programmes effective?

How will you improve or terminate ineffective programme / projects?

Evaluation of development programmes / projects is essential to answer the above questions with evidence.

After studying this unit you should be able to:

Understand the meaning of evaluation and differentiate between appraisal, monitoring, evaluation and impact assessment.

Discuss different types, tools, techniques, designs, approaches and challenges of evaluation.

3.2 WHAT IS EVALUATION?

Evaluation is a systematic collection and analysis of information about the characteristics and outcomes of a programme/project as a basis of judgment to improve its effectiveness and/or to inform decisions about current or future programming (USAID, 2011). Evaluation is one of the essential core competencies for all extension professionals in order to establish accountability of extension programmes/ projects.

Various steps in designing and executing an evaluation study are displayed in Box 1.

Box. 1: Steps in programme evaluation

1. Writing evaluation proposal with :
 - Need for evaluation - economic /technical / social
 - Research / evaluation questions
 - Objectives
 - Evaluation framework
 - o Bennett's Hierarchy
 - o LFA
 - Budget
2. Designing and approval of evaluation survey instrument
3. SPSS coding, pre-testing, recoding SPSS & data collection
3. Data entry & analysis
4. Evaluation report writing & communicating findings - Short reports/ Longer

3.3 APPRAISAL VS. MONITORING VS. EVALUATION VS. IMPACT ASSESSMENT

Though they are often interchangeably used, following distinctions exists between them:

Appraisal: It is a critical examination of a programme / project proposal, normally before implementation and funding with respect to economic viability, technical feasibility, and / social desirability. It is basically a planning and project formulation activity guided by evaluation findings of similar programmes / projects already been implemented.

Monitoring: It is a continuous process starts and ends with a programme / project which is required for immediate use and mid-course correction. It is usually done by implementing personnel by covering all aspects of programme / project for its correction or management. Monitoring is a symptomatic and early warning system

Evaluation: It is an in-depth one shot operation at a point of time, usually at completion or mid way of programme undertaken for future planning/ replication/ expansion. It is a learning and diagnostic process usually done by outside agency covering a sample.

Impact Assessment: Building on appraisal, monitoring and evaluation, the focus of impact assessment is on longer-term and wider-ranging changes beyond the immediate results of the programme or project.

3.3.1 What are We Evaluating?

In general, evaluation is conducted to assess the progress, outputs, outcomes and impact of an extension programme. A few commonly used analytical aspects described by Dale (2004) are given below:

Relevance: To what extent has the programme or project addressed, or is addressing, problems of high priority, as viewed by actual and potential stakeholders, especially beneficiaries?

Effectiveness: To what extent are the planned outputs, expected changes, intended effects (immediate and effect objectives) and intended impact (development objective) being, or have been, produced or achieved?

Impact: The overall consequences of the programme or project for the intended beneficiaries and any other people;

Efficiency: This means the amount of outputs created and their quality in relation to the resources (capital and human efforts) invested;

Sustainability: This means the maintenance or augmentation of positive achievements induced by the evaluated programme or project (or any component);

Replicability: This means the feasibility of repeating the particular programme or project, or parts of it, in another context, i.e., at a later time, in other areas, for other groups of people, by other organisations, etc.

Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. Ask some of your colleagues what they mean by evaluation? Compare their views with the one given in this section and identify the common features.

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2. What is the major difference between appraisal, monitoring, evaluation and impact assessment?

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3.4 EVALUATION - TYPES AND DESIGNS

3.4.1 Types of Evaluation

Evaluations are of the following types based on the programme phase(s) (planning, implementation, and conclusion) at which evaluation is conducted:

- i. **Baseline Evaluation:** Needs assessment is a form of baseline evaluation to find out the target group and their perceived needs/expectations from the programme. If collected, this will also establish baseline data to compare programme results later. Example: Scope for animal welfare education in open and distance learning: findings from a needs assessment study in India (Sasidhar and Jayasimha, 2015).
- ii. **Formative Evaluation:** It is undertaken during the programme implementation stage to determine whether the programme is going as per plan, and changes, if any, are required to meet the objectives. It is also termed as process/ mid-term/concurrent evaluation. Generally, formative evaluations are undertaken in long-term programmes/projects for cross checking/corrective measures. Example: Formative evaluation of Kisan Call Centres in Tamil Nadu (Karthikeyan et al., 2006).
- iii. **Summative Evaluation:** It is undertaken once the programme achieves a stable state of operation or towards the end of a programme to find out its results, effectiveness, impact and further course of action. Summative evaluation findings help extension functionaries/funding agencies to make decisions on programme continuation, modifications, further expansion, reduction, or closure. If summative evaluation is done immediately after completion of a project it is called terminal/ outcome evaluation. If it is done some time after completion of a project, it is called ex-post evaluation. Example: Integrated contract broiler farming: An evaluation case study in India (Sasidhar and Suvedi, 2015).
- iv. **Follow-up Evaluation:** It is undertaken long after completion of the programme to see whether there are any long-term changes among beneficiaries. When follow-up evaluations are repeated at set time intervals to study the long term benefits, sustainability of results and outcomes, they are called longitudinal evaluations. Example: Evaluation of a distance education radio farm school programme in India: Implications for scaling up (Sasidhar et al., 2011).

Box.2: Evaluation tools and techniques by programme stage

Programme Stage	Evaluation Type	Evaluation Questions	Evaluation tools and techniques
Planning stage	Needs assessment Feasibility study Base line study	• What are the felt and unfelt needs of beneficiaries? • Do they fit into extension programme mission? • Can extension programme address these needs? • Is extension programme feasible (socio-economic & environmental)?	Survey FGD Observation Content analysis of records Economic analysis B:C ratio

		• Is programme meeting its objectives of indented outcomes? • Are beneficiaries satisfied with the programme?	Annual monitoring reports Technology adoption patterns KASA change Satisfaction surveys
		• Are the needs addressed? • Are the desired outcomes achieved? • What is the cost effectiveness of the programme?	Pre & post programme data Cohort studies Panel studies Economic analysis

Source : Suvedi and Vander Stoep, 2014

3.4.2 Evaluation Designs

Following are two major evaluation designs:

- i. **Pre vs. Post-programme Evaluation:** It is undertaken through comparison on present situation and situation prior to programme. It suffers from 'memory or recall bias' of the respondents. To overcome this, it is always advisable to have 'baseline' or 'bench mark' study and 'post-programme' study. Unfortunately in most programmes, baseline studies are not undertaken or when available data is inadequate.
- ii. **With-Without Programme Evaluation:** A comparable sample of beneficiaries and non-beneficiaries are to be selected within programme area. Alternately, a comparable adjoining area where programme has not been implemented can also studied along with programme area.

Example: Comparative evaluation of Krishi Vigyan Kendras (with beneficiaries and non-beneficiaries)

Combination of above two designs is most appropriate.

Check Your Progress 2

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. Name different types of evaluation.

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2. Name the suitable evaluation during the following programme stages :

- Planning stage
- Implementation stage
- Conclusion stage

3.5 EVALUATION - DATA COLLECTION METHODS

The different methods to collect evaluation data (Dale, 2004; Bagnol, 2007 and 2014; Suvedi and Kaplowitz, 2016) are given below:

3.5.1 Conventional Methods

Quantitative Methods: They measure a limited number of predetermined outcomes and are appropriate for judging effects, attributing cause, comparing or ranking, classifying and generalizing results (*Example:* Survey and census data).

Qualitative Methods: Through descriptions, they help in understanding the programme context and problems, clarifying relationship between programme objectives and implementation, identifying unintended programme consequences and conducting in-depth impact analysis (*Example:* FGD, participant observation, case study).

Mixed Methods: They combine qualitative and quantitative methods to complement each other. They are appropriate for understanding complex social phenomena allowing plurality viewpoints in a programme.

3.5.2 Participatory Methods

They involve stakeholders in programme evaluation through partnerships and dialogues taking into account the aspects that are often left over by evaluators and can only be identified by stakeholders themselves. (*Example:* Participatory rural appraisal (PRA), Participatory learning methods (PLM), Participatory assessment monitoring and evaluation PAME).

A few basic participatory methods are given in Box.3 and a case study in Box 4 for your understanding.

Box 3. Basic participatory methods

1. **Meetings** – Arranging and conducting meetings with stakeholders, like project beneficiaries, development agents, etc., and proceedings are used as evaluation reports. The main disadvantage is that it involves only little interaction and in-depth assessment is not possible.
2. **Informal Group Discussion**– the evaluator comes into an unplanned group setting in which a relevant discussion takes place, coordinated by the evaluator.
3. **Facilitated Group Discussion**– Group discussions may also be planned and arranged, and will normally be moderated by the evaluator. It is highly interactive and is an in-depth discussion on the effect of the extension programme.
4. **Workshop-based Participatory Analysis** – The beneficiaries and development agencies jointly explore problems, plan or evaluate, in a workshop setting. Participatory rural appraisal (PRA), participatory learning methods (PLM), Participatory assessment monitoring and evaluation (PAME) are a few examples of this approach.

- 5. Collective Brainstorming**– Intensive and open-minded communication event that a group of persons agree to embark on in a specific situation. Useful method for analysing problems, which occur suddenly and require an immediate solution.

Source: Dale (2004)

Box 4: Participatory evaluation of disease control through vaccination campaigns

The KYEEMA Foundation implemented the “Regional Newcastle disease control project” in Malawi, Mozambique, Tanzania and Zambia with the support of AusAID. In January 2012, a participatory evaluation was carried out in 3 villages of Malawi to evaluate the impact of vaccination campaigns. All the male and female farmers interviewed had chickens vaccinated 3 times by community vaccinators in March, July and November 2011.

The first question asked was: *Since the first vaccination did the number of chickens in the flock increase, stay the same or decrease?* Each participant was asked to respond by placing a stone on one of three possible answers written on a flip chart on the ground. The answers were used to generate the following table.

Response	Village 1		Village 2		Village 3	
	12 Women	10 Men	7 Women	8 Men	16 Women	7 Men
	11(92%)	8(80%)	7(100%)	6(75%)	12(75%)	7(100%)
Stayed the same	1(8%)	0	0	0	2(12.5%)	0
Decreased	0	2(20%)	0	2 (25%)	2 (12.5%)	0
Total	12(100%)	10(100%)	7(100%)	8(100%)	16(100%)	7(100%)

The same exercise also included the following questions:

- Since the 1st vaccination did the number of birds that died increase, stay the same or decrease?
- Since the 1st vaccination did the number of chickens sold increase, stay the same or decrease?
- Since the 1st vaccination did the number of chickens consumed increase, stay the same or decrease?

To evaluate the increase in size of household flocks since vaccination in 2011, the participants were asked to state the number of chickens they had in January 2010, and later the number of chickens they had in January 2012. By analysing the median and the average or calculating the average percentage increase per household, it is possible to see the evolution of flock size. Similarly, it is possible to evaluate the number of chickens sold and consumed.

(Source : Bagnol, 2014)

3.6 EVALUATION APPROACHES

Though several approaches are available, Logical Framework Approach (Box 5) and Bennett's Hierarchy Approach (Bennett, 1979) (Box 6) provides a comprehensive framework to evaluate inputs, outputs and outcomes of a development programme. Both these approaches provide a process by examining the chain of means (*what actions we do in extension programme*) and ends (*the result of actions*) through different levels.

Box.5: LFA pertaining to evaluation of Kisan Call Centers in Tamil Nadu				
Situation Mission Objectives of KCC	Inputs	Activities		Outcome
	1. level I, II and III centre staff 2. Telephone, ICT, and Ag. technology 3. Dedicated line with a toll free number identified by MOA, GOI. 5. IVRS 6. Fund by DAC 7. Knowledge Management System 8. Service timings: 6:00 A.M to 10:00 P.M 9. Documentation of Ag. technologies and FAQs. 10. Capacity building	Participants		Short term
		1. Instant reply to farmers at level I. 2. Escalating the unanswered calls to level II and III from level I office. 3. Documentation and reporting to DAC by level III centre. 4. Reply to farmers within 72 hours through post/e-mail through off-line mode by level III centre. 5. M&E by level III. 6. Data base using KMS. 7. Training to level I officials 8. Documenting FAQs 9. Mass media adds.	Farmers Scientists Level I officers	Medium term Long term
Outcomes				
Assumptions Environmental factors	Short Term	Medium Term	Long Term	
	1. Awareness about KCC 2. Participation in KCC	1. Adoption of the advices recommended by KCC 2. Gratification of the services of KCC 3. Information sharing about 1551 and advices given by KCC	1. Overall development of agriculture through TOT 2. Reduction of gap between research extension and farmer linkage.	

(Source : Karthikeyan *et al.*, 2006)

Box.6: Bennett's hierarchy applied in evaluation of contract and non contract broiler farming systems		
Evaluation hierarchy	Measurement	Indicators
Level 7 : End results	Socio-economic changes and impacts	SWOT parameters FGD on: selection of contract farmers; terms and conditions applicable in CBF

Level 6 : Practice	Technical change advices adoption	Non-adoption, discontinuation, partial adoption and full adoption of technical advices
Level 5: KASA	Farmers' perceptions	Perceptions on inputs (chicks, feed, medicines and EAS) and outputs (broiler birds, manure value and payment system)
Level 4 : Reactions	Farmers' feedback	Factors of motivation to do CBF and NCBF Reasons to change integrator(s) or input providers in the past two years
Level 3 : Outputs	Technical and economic performance	Broiler birds (flock size, mortality number, birds sold, sale age, sales rate and birds lifting days) Productivity (mortality percentage, birds sold, feed consumption and body weight) Efficiency (FCR, sale age, weight gain/day) Economics of inputs and outputs EAS (frequency of information from various sources)
Level 2 : Activities	Activities in CBF and NCBF	Physical and human resource activities in CBF and NCBF
Level 1: Inputs	Investments and Demographics	Fixed and variable costs Age, gender, education, social category, family and size, poultry occupation and experience

(Source : Sasidhar and Suvedi, 2015)

3.6.1 Challenges in Programme Evaluation

The results of development programme, especially KASA changes and long term outcomes are often intangible to measure. Suvedi and Vander Stoep (2014) outlined three major challenges in evaluating extension programmes :

- Frequent use of descriptive, one-shot case study for impact evaluation and lack of precise and straight assessments of cause-and-effect outcomes of programme. Extension needs to establish a scientific knowledge base and generate evidence on its work. *Example:* Do farmers who attend extension trainings adopt new technologies earlier than those who do not?
- It is difficult to establish a control or comparison group, maintain uniform treatments and measure long-term impacts of extension programme.

- (c) Non-availability / inadequate baseline and monitoring data on impact indicators to see expanded impacts over time.

Check Your Progress 3

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. Give examples for the following conventional evaluation data collection methods.

Quantitative Methods:

.....

Qualitative Methods:

.....

2. Do you agree that in participatory evaluation methods have advantage in terms of stakeholders' involvement? Justify your answer.

.....

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.....

3. Name two comprehensive evaluation approaches.

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3.7 LET US SUM UP

Evaluation has been neglected and mistakenly seen as a fault finding mechanism. It is to be understood that evaluation is a learning process and our past experiences guide us to a better future. Therefore every development professional should acquire evaluation as a core competency to assess the impact of their programmes.

In this unit, we discussed the meaning, steps in evaluation and differentiated between appraisal, monitoring, evaluation and impact assessment. Later we discussed important types, tools and techniques of evaluation by programme stage and analyzed evaluation designs, evaluation data collection methods, and evaluation approaches. At the end we discussed the challenges in programme evaluation.

3.8 KEYWORDS

Appraisal: It is a critical examination of a programme / project proposal, normally before implementation and funding with respect to economic viability, technical feasibility, and/social desirability.

Baseline Evaluation: Needs assessment is a form of baseline evaluation to find out the target group and their perceived needs/expectations from the programme.

Evaluation: It is a systematic collection and analysis of information about the characteristics and outcomes of a programme/project as a basis of judgment to improve its effectiveness and/or to inform decisions about current or future programming

Follow-up Evaluation: It is undertaken long after completion of the programme to see whether there are any long-term changes among beneficiaries.

Formative Evaluation: It is undertaken during the programme implementation stage to determine whether the programme is going as per plan, and changes, if any, are required to meet the objectives.

Impact Assessment: Building on appraisal, monitoring and evaluation, the focus of impact assessment is on longer-term and wider-ranging changes beyond the immediate results of the programme or project.

Monitoring: It is a continuous process starts and ends with a programme / project which is required for immediate use and mid-course correction.

Summative Evaluation: It is undertaken once the programme achieves a stable state of operation or towards the end of a programme to find out its results, effectiveness, impact and further course of action.

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3.10 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1. Evaluation is a systematic collection and analysis of information about the characteristics and outcomes of a programme/project as a basis of judgment to improve its effectiveness and/or to inform decisions about current or future programming.
2. Appraisal is a critical examination of a programme proposal, normally before implementation and funding with respect to economic viability, technical feasibility, and /social desirability. Monitoring is a continuous process starts and ends with a programme / project which are required for immediate use and mid-course correction. Evaluation is an in-depth one shot operation at a point of time usually at completion or mid way of programme undertaken for future planning/ replication/ expansion. Impact Assessment focus is on longer-term and wider-ranging changes beyond the immediate results of the programme or project.

Check Your Progress 2

1. Baseline, formative, summative and follow-up evaluations are different types of evaluations.
2. Planning stage (Needs assessment, Feasibility study and Base line study); Implementation stage (Formative evaluation); Conclusion stage (Summative evaluation)

Check Your Progress 3

1. Quantitative Methods (Survey and census data); Qualitative Methods (FGD, participant observation, case study).
2. Yes. They involve stakeholders in programme evaluation through partnerships and dialogues taking into account the aspects that are often left over by evaluators and can only be identified by stakeholders themselves.
3. Logical Framework Approach and Bennett’s Hierarchy Approach provides a comprehensive framework to evaluate inputs, outputs and outcomes of a development programme.